

**International Space Education Initiative
“Bridging the Gap between Space and Education”**

Submitted By:

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Program Vision and Scope

The vision of the International Space Education Initiative (ISEI) - Phase I of III is to bring the excitement of the National Aeronautics and Space Administration's (NASA's) exploration of the Solar System to a diverse international audience in the context of formal classroom standards-based learning. While enabling those educators to provide inspiration in promoting an interest in science-mathematics-technology learning among their students.

The program enables this vision through a specially trained international network of "International Space Educator (ISE's), who conduct workshops to train K-12 educators who, in turn, teach students from international diverse geographic, cultural, and economic regions. During Phase I of this program the primary focus will be the continent of Africa.

During the initial Phase I of this program, a lead "International Educator" will be selected within a specific geographical region of Africa. To deepen the experience and commitment of this educator, their professional expertise in teaching in areas of mathematics, science, and/or technology along with training methods will be sought. This educator will be provided with the resources and support necessary to put specific NASA and international space missions into context of these overall goals. While utilizing curriculum supplement materials, classroom activities, and internet-based applications. It is our goal to provide a multitude of resources necessary to share their knowledge with other educators within the continent of Africa.

During Phase I of the ISEI program, this educator will be selected through an application process and trained at NASA's Jet Propulsion Laboratory in Pasadena, California. This international educator will be training alongside educators from the United States within the existing NASA/JPL Solar System Educators Program (SSEP). The current SSEP Consortium is comprised of the Cassini mission to Saturn, Deep Impact mission to a comet, Deep Space Network, Galileo mission to Jupiter, Mars Program, Stardust comet sample return mission, Outer Planets/Solar Probe Program, JPL Space and Earth Sciences Directorate, NASA Office of Space Science Solar System Exploration Education and Public Outreach Forum. The ISEI Program will parallel the already nationally recognized NASA/JPL SSEP. Training for this existing NASA/JPL program has currently been scheduled for August 2000.

Program Goal

The selected educator will have similar requirements as the NASA/JPL Solar System Educators, in that they will be responsible to train an additional one hundred teachers within the countries and school districts primarily French and English speaking within African states. The identified educator will be trained and interact with members of the NASA/JPL Solar System Program and will agree to train others teachers within their continent and using quality standards-based lesson plans and programs in order to be selected. Sponsorship will be necessary from organizations within the international educator's continent during Phase II (* program costs cited below). It will be the commitment of this educator to share with other educators the tools provided to them through ISEI. By sharing in the same training experience as the NASA/JPL Solar System Educators, the educator can share the knowledge and experiences from the existing core educators in turn they can provide necessary links to cultural and educational differences and close the gap that exists.

The NASA/JPL Solar System Educators Program consolidates educational programs previously offered by three JPL-managed space missions - - the Cassini mission to Saturn, the Galileo mission to Jupiter and the Stardust mission to a comet. Fifty-five educator fellows will be merged into the new Solar System Educators Program, with an additional twenty-five to be added each year starting in 2001. The ultimate goal of the program is to cover all 50 states and U.S. territories and include international involvement.

Institute Training Initiative

During Phase I of the International Space Education Initiative (ISEI), one international educator will attend a four-day institute at Jet Propulsion Laboratory (JPL) in Pasadena, CA in August 2000. During this four-day institute, called the Solar System Educators Program (SSEP). JPL, Space Explorers, Inc. and the Virginia Space Grant Consortium will train approximately 55 pre-selected teachers from across the United States. During this institute, educators will have the opportunity to work closely with scientists, engineers and mission experts that are intimately involved in specific mission and solar system exploration. Educators will train through a variety of methods ranging from hand-on activities (ex: "How to Make a Comet" or "Be a Spacecraft Engineer"), lectures, internet training, and be supplied with Educational Kits for use primary in the 5-8 grades.

In addition, monthly "virtual workshops" will be held online to help build on the ideas and concepts introduced in the Institute. These virtual workshops will primary be focused around thematic themes – Formation and Evolution of Our Solar System; Origins, Existence, and Future of Life on Earth; Support Earth-like Worlds; and Space Technologies. ISEI will also provide support via a toll-free Internet service, which will provide on-line training, electronic support materials, chat room and message board.

The selected educator will receive additional training in the curriculum, simulated missions, and research activities developed by Space Explorers, Inc. These products include Moonlink, NEARlink, Marslink, and K-3 Space programs.

(1) Selection of Phase I - International Educator

It is anticipated that Dr. Cheick Diarra from the Jet Propulsion Laboratory will aid in the selection of the educator with the assistance from the International Space Education Initiative Program Director (TBD). Selection of the international educator should be made at no later than end of May. The select educator will be sponsored to attend the NASA/JPL Solar System Educator Program institute training currently scheduled for August of 2000.

(2) Educational Outreach

Space Explorers, Inc. will provide seven classrooms within the African continent with Moonlink to assist in the study of space and science through actual NASA missions. During Phase II a corporation sponsored educators from a French/English speaking country better-educated labor pool in space and the use of computers/Internet for science investigation.

* Moonlink is a program of Space Explorers, Inc. (SEI), and a privately funded business, which has a Space Act Agreement with Ames Research Center. SEI offers innovative space education programs, providing students with an inspiring method of learning science while at the same time preparing them for future study and employment. Through Moonlink students are able to simulate a mission. Through a series of mission stages (Phase I, II, and III), modeled after an actual missions Phase A/B, C/D, and Phase E, these mission simulation create opportunities for students to be directly involved with the science that is being studied. SEI's programs focus on developing an important link between the space and education communities. In this active role, students will receive primary source information about space, experience the excitement of the discovery process, and become involved in the creation of new knowledge. This process will automatically spark the students' natural curiosity about space exploration and science and contribute to developing life-long learners and informed citizens.

Phases

Phase I: The first step is to identify and train two International Space Educators (ISE). National Aeronautics and Space Administration sponsored International Educator. In collaboration with the United Nations Pathfinder Foundation and Dr. Cheick Diarra of the Jet Propulsion Laboratory, the first French/English speaking educator will be supported in the regional training center currently in development in Mali.

Phase II: Collaborate with the Pathfinder Foundation and Dr. Cheick Diarra as to how to better aid the Pathfinder Foundation in future development of three planned regional education and training centers in the African continent.

Select additional International educator in coordination with the development of regional training centers within the African continent. Train additional international educator based on geographical location to a specific center, primary language, and basic understanding of mathematics, science, and technology.

An additional African educator will be trained in conjunction with the NASA/JPL Solar System Educators at JPL or other determined NASA Center in the year 2002.

Focus on selection of additional International Educators in countries where NASA has already established working contract agreements (i.e.- Chile (Deep Impact), Japan (MUSE-CN), France (Cassini-Huygens), and Germany (Stardust)). Through existing partnerships and collaboration with NASA approved and funded missions and international mission partners, a mission link will be established and mentorship will be provided through individual engineering and science team members. International mission partners will be expected to provide funding not covered under organizational contract with NASA for this program. Funding of this program will be monitored through NASA's External Affairs Division. The Jet Propulsion Laboratory, in partnership with Johns Hopkins University, Applied Physics Laboratory, and Space Explorers, Inc will manage this program for the National Aeronautics and Space Administration.

Phase III: Extend the International Space Education Initiative to other countries not currently partnered with NASA missions. ISES will continue to seek out financial and material support for International Educators. Total program growth is expected to be a minimum of 100 International Educators by 2002.

Costing:

Cost is based per International Educator. Cost below based on Phase I selection of educator.

• August Institute including 12 months support, resources and materials	\$5000.00
• Sponsorship of (7) schools in Africa picked by the locations/sites in the Moonlink Mission.	\$5000.00
• <u>Travel coordination and logistics (lodging, per diem, transportation)</u>	<u>\$5000.00</u>
Total cost for program	\$15,000.00